

RACHEL CARSON NATIONAL WILDLIFE REFUGE

Wells, Maine

C.O.(RF)

NARRATIVE REPORT

Jan. - Dec. 1971

United States Department of the Interior  
Bureau of Sport Fisheries and Wildlife

RACHEL CARSON NATIONAL WILDLIFE REFUGE

Under the supervision of

PARKER RIVER NATIONAL WILDLIFE REFUGE

TABLE OF CONTENTS

GENERAL	1
WILDLIFE	2
REFUGE DEVELOPMENT	2
RESOURCE MANAGEMENT	3
FIELD INVESTIGATIONS	3
PUBLIC RELATIONS	3
OTHER ITEMS	4

# NARRATIVE REPORT

## RACHEL CARSON NATIONAL WILDLIFE REFUGE

Jan. - Dec. 1971

### I. General

#### A. Weather Conditions.

The following weather information was obtained from the U. S. Weather Bureau Office in Portland, Maine located close to the proposed northernmost unit of the refuge, the Spurwink area. Weather conditions were generally similar to those seen at Parker River except for greater extremes during severe periods.

#### Precipitation

	<u>Snowfall</u>	<u>This Month</u>	<u>Average</u>	<u>Maximum</u>	<u>Minimum</u>
				<u>Temperature</u>	
Jan.	17.2"	2.25"	4.37"	40	-26
Feb.	35.6	6.76	3.80	46	-25
Mar.	24.7	4.74	4.34	50	10
Apr.	9.2	1.86	3.73	61	21
May		4.09	3.41	76	35
June		1.09	3.18	96	39
July		3.14	2.86	93	48
Aug.		3.24	2.42	90	42
Sept.		3.55	3.52	90	35
Oct.		3.95	3.20	83	30
Nov.	6.2	4.13	4.17	71	15
Dec.	12.5	2.85	3.85	54	-3
Totals	105.4	41.65	42.85		
Extremes				96	-26

#### B. Habitat Conditions.

1. Water: The water in all units of the refuge acquired and optioned to date is tidal. The mean tidal range of the lower units is 8.7 feet and the spring range is 9.9 feet. The highest tide is estimated as 13.5 feet above, and the lowest tide 3.5 feet below mean low water. All nine units are elevated above the level of the tidal streams which have cut rather deep channels through them.
2. Food and Cover: Vegetation is a combination of salt meadow cordgrass (Spartina patens), short salt marsh cordgrasses (Spartina alterniflora) and salt grass (Distichles spicata). In the highest marshes, salt marsh goldenrod (Solidago sempervirens), orache (Atriplex hastata), plantain (Plantago maritime), sea lavender (Limonium nashii), and black grass

(Juncus gerardi), are abundant. In a number of spots, three square (Scirpus robustus) is common.

Food and cover were assumed to be adequate in all units.

## II. Wildlife

### A. Migratory Birds.

#### 1. Waterfowl:

Canada geese, black ducks, green-winged teal and limited numbers of other species used the marsh units as occasion warranted. All use data is estimated.

As in past NR's, State of Maine winter waterfowl inventory figures covering 1967-1971 are given below for reference and comparative purposes. This information was obtained from State biologists who regularly each January have flown the forty-five mile stretch of coastline in which the nine Rachel Carson units are located (their census unit 8). It is probable that the majority of these birds were observed off shore or in rivers rather than on coastal marsh land units of the refuge.

#### Winter Inventory Data Rachel Carson Area

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Canada Geese	-	-	290	285	310
Black Duck	1207	700	1180	2805	2912
Goldeneye	483	400	210	355	255
Bufflehead	45	250	90	60	370
Scoter	304	200	520	90	200
Eider	721	3500	1290	1915	1280
Old Squaw	45	200	80	-	-
Misc.	229	100	60	-	-
	<u>3034</u>	<u>5350</u>	<u>3430</u>	<u>5225</u>	<u>5327</u>

#### Remarks:

1. Winter inventory count concentrates mainly on black ducks as the target species.
2. Data provided by J. William Peppard, Waterfowl Research Leader, Maine Dept. of Inland Fisheries and Game.

## III. Refuge Development and Maintenance

### A. Physical Development.

#### 1. Marsh and Water.

Nothing to report.

2. Roads and Trails.

Nothing to report.

3. Fencing and Posting.

Nothing to report.

4. Land Acquisition.

Records as of Dec. 31, 1971 indicated that 1,374 acres had been deeded to the Bureau. This represents about 34% of the total approved acquisition.

IV. Resource Management

Not applicable.

V. Field Investigation or Applied Research

Not applicable.

VI. Public Relations

A. Recreational Use.

The dedication site remains the only significant portion of upland within the total acquisition program that lends itself to any degree of public use. Most visitors come to hike this 3/4 mile nature trail.

Public Use Specialist Grace Christy has prepared a draft of the nature trail system in which stops are interpreted to aid the public.

B. Refuge Visitors.

Bob Shields of the C. O. visited the area for orientation on October 14th in company with Regional Biologist Bill French and Mr. Forward.

C. Refuge Participation.

Not applicable.

D. Hunting.

The incomplete, piecemeal ownership pattern of the project area thus far is such that no areas of the refuge were posted or closed

to hunting. Several waterfowl blinds are still being maintained on the marshes by private individuals.

E. Violations.

Not applicable.

F. Safety.

Not applicable.

VII. Other Items

A. Items of Interest;

None.

B. Photographs.

None.

NR Forms.

1C, 1D, 5, 7, 8 and 11 have been omitted since they are not applicable.

Credits: Entire report prepared by W. R. Forward.

Typing: Catherine A. Welch and Linda Kipp.

Reviewed by:

Submitted by:

*Howard D. Woon*  
Regional Refuge Supervisor  
 Signature Date

*William R. Forward* 4/18/72  
Signature Date  
*Acting Refuge Mgr.*

NR's checked in R.O. by: HC

WATERFOWL

REFUGE NACHEZ CANYON N. V.

MONTHS OF Jan. TO April, 19 71

(1) Species	(2) Weeks of reporting period									
	1/1-7	8-14	15-21	22-28	29-2/4	5-11	12-18	19-25	26-3/4	5-11
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada									20	50
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard										
Black	50	50	50	50	50	50	50	100	100	100
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye					20	30	20	50	50	100
Bufflehead					30	30	20	10	20	50
Ruddy										
Other										
	TOTAL FOWLING ARE RECORDED.									
<u>Coot:</u>										

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)  
 5RF - 4/68

WATERFOWL  
 (Continuation Sheet)

REFUGE Nashua Canyon N. W.

MONTHS OF Jan.

TO April

, 1971

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production
	3-12-18 11	19-25 12	26-4/1 13	5-8 14	9-15 15	16-22 16	23-29 17	30 18	waterfowl days use	Broods: Estimated seen : Total
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	100	100	500	200	200	100	50	50	11,390	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	10	30	30	20	10				700	
Black	250	500	800	700	200	150	100	50	25,900	
Gadwall										
Baldpate										
Pintail	20	30	50	70	10	10			1,540	
GW teal		50	100	500	400	200	100	50	11,600	
BW teal		10	100	250	200	100	50	10	4,950	
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye	100	100	80	40	40	20	10	10	4,630	
Bufflehead	100	100	120	100	80	60	20	20	5,400	
Ruddy										
Other										
			DATA PROVIDED AND REPRODUCED.							
Coot:										

(over)

NR-1

Cont. From

Jan.

to

April

19

71



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	11,300	500	
Ducks	52,430	1,780	
Coots			

SUMMARY

Principal feeding areas tidal creeks and mud flats when open.

Principal nesting areas margin of units.

Reported by W. R. Forward

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

- (1) Species: In addition to the birds listed on form, other species occurring on the refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

(Rev. March 1953)

# WATERFOWL

MONTHS OF May TO August, 1971

[illegible]

3-1750a  
Cont. NR-1  
(Rev. March 1953)  
5RF - 4/68

WATERFOWL  
(Continuation Sheet)

REFUGE Bachel Canyon N. W.

MONTHS OF May TO August, 1971

(1) Species	(2) Weeks of reporting period								(3)	(4)	
	7/10-16: 11	17 - 23: 12	24 - 30: 13	31 - 8/6: 14	7 - 13: 15	14 - 20: 16	21 - 27: 17	28 - 31: 18	Estimated waterfowl days use	Production Broods: Estimated seen	Total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									280		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard			5	5	10	10	10	20	360		
Black	30	40	50	50	60	70	100	100	5,230		80
Gadwall											
Baldpate											
Pintail						10	10	30	220		
GW teal									560		
BW teal	10	10	20	20	30	40	50	70	2,260		20
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
DATA FURNISHED ARE ESTIMATES											
Coot:											
<div style="display: flex; justify-content: space-between;"> <span>(over)</span> <span>NR-1 Cont. From <u>May</u> to <u>August</u> 19 <u>71</u></span> </div>											

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	200	30	-
Ducks	860	20	100
Coots			

SUMMARY
Principal feeding areas <u>land flats, tidal pools.</u>
Principal nesting areas <u>edges of salt marsh areas.</u>
Reported by <u>H. B. Woodard</u>

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

- (1) Species: In addition to the birds listed on form, other species occurring on the refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1750

Form NR-1

(Rev. March 1953)

## WATERFOWL

REFUGE Rachel Carson N.W.R.

MONTHS OF September TO December, 1971

[illegible]

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)  
 5RF - 4/68

WATERFOWL  
 (Continuation Sheet)

REFUGE Rachel Carson

MONTHS OF September TO December, 19 71

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : Total
	11/10-16 11	17-23 12	24-30 13	12/1-7 14	8-14 15	15-21 16	22-28 17	29-31 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	50	50	50	50	50				4,480	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	10	10	10	10	10				2,450	
Black	100	200	100	100	100	50	50	50	20,170	
Gadwall										
Baldpate										
Pintail									1,120	
GW teal	20	10							4,270	
BW teal									4,240	
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye	100	100	100	100	50	50	30	30	4,640	
Bufflehead	100	100	100	50	50	50	50	50	4,980	
Ruddy										
Other										
Data furnished are estimates										
Coot:										

(over) NR-1 Cont. From September to December, 19 71



	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	4,180	100	
Ducks	41,970	670	
Coots			

SUMMARY	
Principal feeding areas	Tidal creeks and mud flats
Principal nesting areas	
Reported by	W. Forward

### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

- (1) Species: In addition to the birds listed on form, other species occurring on the refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751  
Form NF 1  
(Aug. 1, 1972)

LABORATORY BIRDS  
(Other than Waterfowl)

Refuge Nicholas Carson N. W.

Months of Jan. to April 1971

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
<b>I. Water and Marsh Birds:</b>										
<b>Great Blue Heron</b>	<b>2</b>	<b>4/25</b>	<b>3</b>	<b>4/30</b>	<b>1</b>	<b>4/30</b>				<b>120</b>
<b>II. Shorebirds, Gulls and Terns:</b>										
<b>Lesser Yellowlegs</b>	<b>1</b>	<b>4/15</b>	<b>5</b>	<b>4/30</b>	<b>2</b>	<b>4/30</b>				<b>200</b>
<b>Great Black-backed Gull</b>	<b>10</b>	<b>1/5</b>	<b>20</b>	<b>3/25</b>	<b>5</b>	<b>4/30</b>				<b>2,500</b>
<b>Herring Gull</b>	<b>15</b>	<b>1/5</b>	<b>30</b>	<b>4/1</b>	<b>10</b>	<b>4/30</b>				<b>7,000</b>
<b>DATA FURNISHED ARE ESTIMATES.</b>										

(over)

NR-1A From Jan. to April 1971  
5RF-2/71



	(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>						
Mourning dove	2	4/15	5	4/30	1	4/30
White-winged dove						100
IV. <u>Predaceous Birds:</u>						
Golden eagle						
Duck hawk						
Horned owl						
Magpie						
Raven						
Crow	1	1/5	30	4/1	2	4/30
						2,800

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

#### Explanation of column headings:

- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1751  
Form NF 4  
(Aug. 1, 1972)

LABORATORY BIRDS  
(Other than Waterfowl)

Refuge Rachel Carson N. W.

Months of May to August 1971

(1)	(2)		(3)		(4)		(5)			(6)
Species	First Seen		Peak Concentration		Last Seen		Production			Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
<b>I. Water and Marsh Birds:</b>										
Great Blue Heron	1	5/1	10	6/10	2	8/31				1,500
Green Heron	2	5/10	30	7/20	2	8/31				3,500
Black-crowned Night Heron	1	5/10	50	7/20	5	8/31				5,000
<b>II. Shorebirds, Gulls and Terns:</b>										
Greater Yellowlegs	5	5/20	200	8/10	10	8/31				3,500
Lesser Yellowlegs	2	5/30	400	8/15	20	8/31				4,000
Least Sandpiper	10	7/10	1,000	8/1	50	8/20				6,000
Short-billed Dowitcher	5	7/10	1,000	7/25	10	8/10				5,000
Semi-palmated Sandpiper	10	7/25	1,000	8/15	5	8/25				7,000
Great Black-backed Gull	10	5/1	50	8/30	2	8/31				7,000
Herring Gull	25	5/1	300	8/30	10	8/31				25,000
Common Tern	10	5/15	200	8/15	30	8/31				5,000

(over)

NR-1A From May to August 1971

5RF-2/71

	(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>						
Mourning dove	2	5/11	20	8/25	5	8/31
White-winged dove						1,900
IV. <u>Predaceous Birds:</u>						
Golden eagle						
Duck hawk						
Horned owl						
Magpie						
Raven	2	5/1	30	7/1	2	8/31
Crow						7,000

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

Explanation of column headings:

- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1751  
Form NF 4  
(Aug. 1, 1972)

LABORATORY BIRDS  
(Other than Waterfowl)

Refuge Rachel Carson

Months of September to December 19 71

(1)	(2)		(3)		(4)		(5)			(6)
Species	First Seen		Peak Concentration		Last Seen		Production			Total
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Common Loon	1	9/15	15	10/5	1	12/10				400
Double-crested Cormorant	1	9/1	40	10/10	2	12/1				1,000
Great Blue Heron	2	9/1	10	9/30	1	12/1				400
Green Heron	5	9/1	20	9/20	2	10/10				600
Black-crowned Night Heron	2	9/1	30	9/25	1	10/10				800
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	2	9/1	5	9/15	1	9/30				100
Black-bellied Plover	5	9/1	100	9/15	10	9/20				1800
Lesser Yellowlegs	10	9/1	40	9/20	5	10/10				2500
Dunlin	5	10/1	100	11/1	10	12/1				3500
Great Black-backed Gull	5	9/5	40	11/30	10	12/31				4000
Herring Gull	10	9/1	150	11/15	20	12/31				7000
Common Tern	5	9/1	30	9/10	2	9/25				600

(over)

Data furnished are estimates

NR-1A From September to December 19 71  
5RF-2/71

	(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove	2	9/1	10	9/15	2	10/1
White-winged dove						700
IV. Predaceous Birds:						
Golden eagle						
Duck hawk						
Horned owl						
Magpie						
Raven						
Crow	15	9/1	40	11/15	5	12/1
						5000

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

Explanation of column headings:

- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Rachael Carson N. W.

For 12-month period ending August 31, 19 71

Reported by W. R. Forward

Title Wildlife Biologist

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
Refuge considered all one unit.	Crops	-	Ducks	92,960	100
	Upland	55	Geese	12,860	-
	Marsh	1,172	Swans	-	-
	Water	142	Coots	-	-
	Total	1,369	Total	112,820	100
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
-----					
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		

(over)

DATA FURNISHED ARE ESTIMATES.

## INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

5RF-2/27/70

3-17  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Nachal Carson N. W. Months of Jan. to April 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	55 acres Upland Brush	27.5	-	-	50:50	-	-	-	2	-

DATA FURNISHED ARE ESTIMATES.



3-175  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Rachel Carson N. W. Months of May to August 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
<b>Ruffed Grouse</b>	<b>55 acres Upland Brush</b>	<b>27.5</b>	<b>-</b>	<b>-</b>	<b>50:50</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>
<b>DATA FURNISHED ARE ESTIMATES.</b>										

NR-2 - Upland Game Birds - Months of May to Aug. 1971

5RF-2/71

3-175  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Rachel Carson

Months of September to December 19 71

(1) Species  Common Name	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
<b>Ruffed Grouse</b>	<b>55 acres upland brush</b>	<b>27.5</b>	-	-	<b>50:50</b>	-	-	-	<b>2</b>	-

Refuge Rachel Carson

Calendar Year 1971

(1) Species	(2) Density	(3) Young Produced	(4) Removals			(5) Losses			(6) Intro- ductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, Total Acres Habitat	Number	Hunting	Restocking	Research	Predation	Disease	Winter Loss	Number and Source	Period of Peak Use	As of Dec. 31	
White-tailed Deer	590 acres - brush and tidal marsh edges	-	-	-	-	-	-	-	-	6	4	50:50

Remarks: **Data furnished are estimates**

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

2 1754  
Form NR-4  
(June 1945)

# SMALL MAMMALS

Refuge Patuxent River N. W. Year ending April 30, 1971

(1) Species	(2) Density	Removals						(4) Disposition of Furs					(5)	
Common Name	Cover Types and Total Acres of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	Restocking	For Research	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula- tion
								Permit Number	Trappers Share	Refuge Share				
Muskrat	1,314 acres Tidal Marsh & Water	44	.	.	.	.	.	.	.	.	.	.	.	30
Mink	" " " "	219	.	.	.	.	.	.	.	.	.	.	.	6
Otter	" " " "	697	.	.	.	.	.	.	.	.	.	.	.	2
Raccoon	990 acres Brush & Tidal Marsh edges	99	.	.	.	.	.	.	.	.	.	.	.	10
Striped Skunk	" " " "	49	.	.	.	.	.	.	.	.	.	.	.	12
Red Fox	" " " "	147	.	.	.	.	.	.	.	.	.	.	.	4

REMARKS: Data furnished are estimates.

## INSTRUC NS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- |                         |  |
|-------------------------|--|
| (1) SPECIES:            | Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)  |
| (2) DENSITY:            | Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) REMOVALS:           | Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.   |
| (4) DISPOSITION OF FUR: | On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.   |
| (5) TOTAL POPULATION:   | Estimated total population of each species reported on as of April 30.   |
| REMARKS:                | Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.  |

# MONTHLY RECREATIONAL USE REPORT

Refuge name  
**Rachel Carson NWR**

State  
**Maine**

State  
Code **19**  
(1-2)

Congressional  
District Code **01**  
(3-4)

Refuge  
Code **505**  
(5-7)

Report Yr. | Mo.  
Period **7** | **1**  
(8-11)

(Card Columns). . . . . (12-13) (14-18) (19-25)

ACTIVITY	Code	VISITS FOR THE MONTH	
		Total Number	Total Hours
Hunting:			
Big Game	01		
Upland Game	02		
Waterfowl	03		
Other Migratory	04		
Other	05		
Bow	06		
Fishing:			
Salt Water	07	<b>600</b>	<b>1200</b>
Warm Water	08		
Cold Water	09		
Environmental Education	10		
Wildlife Photography	11	<b>520</b>	<b>1040</b>
Wildlife Observation	12	<b>9,400</b>	<b>9,400</b>
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15	<b>1,380</b>	<b>1,380</b>
Wildlife Tours/Routes	16	<b>34,600</b>	<b>34,600</b>
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	<b>3,310</b>	<b>1,655</b>
Wildlife Interpretive Center	20		
Off-Site Programs	21		

(Card Columns). . . . . (12-13) (14-18) (19-25)

ACTIVITY	Code	VISITS FOR THE MONTH	
		Total Number	Total Hours
On-Site Programs	22		
*Miscellaneous Wildlife	23		
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33		
*Miscellaneous Non-Wildlife	34		
Peak Load Day	35	<b>800</b>	
Actual Visits	36	<b>41,670</b>	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	\$	
Collection Costs	40	\$	